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EXAMINER	
REPKO, JASON MICHAEL	

ART UNIT	PAPER NUMBER
2671	

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

/

Office Action Summary	Application No.	Applicant(s)	
	10/626,802	KALLAY, MICHAEL	
	Examiner	Art Unit	
	Jason M. Repko	2671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-16 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 7/23/2003 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 20 (p. 15, line 11*),* 506 (p. 35,line 2), 610 (p. 35, line 23). The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 504 (Fig. 5). The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "602" has been used to designate both "graphics frame data" and "change data (motion/collision)." Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 1 is objected to because of the following informalities: the claim contains the grammatical error "based on based on" in line 7. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1-3 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Messer et al, "Algorithm 550: Solid Polyhedron Measures [Z]," ACM Transactions on Mathematical Software (TOMS), v.6 n.1, p.121-130, March 1980 (herein referred to as "Messer et al") in view of Jorge Cortés, Sonia Martínez, Timur Karatas and Francesco Bullo, "Coverage control for mobile sensing networks," May 11, 2002, Proceedings of the 2002 IEEE International Conference on Robotics and Automation, p. 1327-1332 (herein referred to as "Cortés et al.")**

5. With regard to claim 1, Messer et al teaches "determining properties for a homogeneous quadratic polynomial" (*p. 122: "Consider, for example, the moment of inertia about the x axis (as given in [2]):...*"). Messer et al teaches integrating homogeneous quadratic polynomial equations (1) through (10) given in the section "METHOD."

6. With regard to lines 5 and 6 of claim 1, Messer et al uses the centroid of the triangle (p_l) in equation 11 on page 123. The computation of the centroid is shown in the computer executable program code for Algorithm 550 in the subroutine SURFINT (lines 589-591):

```
PX(1)=(X(1)+X(2)+X(3))/3.
PY(1)=(Y(1)+Y(2)+Y(3))/3.
PZ(1)=(Z(1)+Z(2)+Z(3))/3.
```

In the computer executable program code above, the variables X, Y, and Z are arrays containing the values of the x, y, and z coordinates of the vertices of the triangles.

7. With regard to lines 10 and 11 of claim 1, Messer et al teaches using a computer component. Messer et al does not expressly teach "providing the properties to a computer component for subsequent processing." However, this feature is deemed to be inherent to the method as the code for algorithm 550 that the subroutine SRFINT provides the output to other subroutines for further processing, and the second paragraph of section "TESTS" on page 125 (*"Several specific test problems are presented to illustrate the accuracies obtainable in single and double precision with the IBM 370 equipment."*) shows the results are used in tests that were run on a computer component in which the results are shown in Table I. The system would be inoperative if subsequent processing by a computer component was not performed to output the data.

8. With regard to lines 7-9 of claim 1, Messer et al teaches solving an area integral using an approximation based on a weighted sum based on the vertices (*p. 123: "Computation of the surface integrals is done through a quadrature rule applied to the triangular elements of the surface polygons...This rule, a minimum point exact rule for our purpose converts the continuous integral into a sum of four discrete values..."; equation 11 uses the vertices of the triangle.*) Messer et al does not expressly teach solving an area integral for the triangle without integration based on an area of the triangle. Cortés et al teaches "solving an area integral for the triangle without integration based on an area of the triangle and the vertices" in Section IV. Cortés et al does not use the explicit language; however, one of ordinary sill in the art would recognize that Section IV. A shows an expression using the vertices to solve an area integral $U(p_1,..,p_n)$ over

region V. Section IV. B shows an expression for the term M_{Vi} in the aforementioned integral, where M_{Vi} gives the mass for a region with a unity density function, and the expression for M_{Vi} is based on the formula for the area of region V_i in terms of the vertices of the region.

9. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the method for solving an area integral for a triangle by Cortés et al in the method taught by Messer et al. The motivation for doing so would have been to use an algebraic expression based on the vertices as is often done in the art to improve computational efficiency or simplify implementation. Therefore, it would have been obvious to combine Cortés et al with Messer et al to obtain the invention specified in claim 1.

10. Claim 2 is met by the combination of Messer et al and Cortés et al, wherein Cortés et al teaches "solving the area integral for the triangle (T) without integration and with vertices $\boldsymbol{P_1}$, $\boldsymbol{P_2}$, $\boldsymbol{P_3}$ uses the formula..." Cortés et al does not use the explicit language; however, one of ordinary sill in the art would recognize that Section IV. A shows an expression using the vertices to solve an area integral $U(p_1,..,p_n)$ over region V, section IV A shows a function $f(x) = x^2$, section IV B gives the equation for computing the centroid, C_{vi} , section IV B gives the equation M_{Vi} gives the mass for a planar region with a unity density function and the area of that region, and section IV B gives the equation for the polar moment $J_{Vi,Cvi}$.

11. Claim 3 is met by the combination of Messer et al and Cortés et al, wherein Cortés et al teaches "solving the area integral for the triangle comprises determining the area of the triangle from one-half a determinant based on the vertices" (*section IV. B gives the equation M_{Vi} gives the mass for a planar region with a unity density function and the area of that region.*)

12. Claim 5 is met by the combination of Messer et al and Cortés et al, wherein Messer et al teaches "determining another centroid of another triangle from vertices of the other triangle, solving another area integral for the other triangle without integration based on based on an area of the other triangle and the vertices, and summing results of each triangle to provide the properties of a polygon constructed from at least the triangle and the other triangle" (*page 123 in the final two paragraphs of the section "METHOD": "Computation of the surface integrals is done through a quadrature rule applied to the triangular elements of the surface polygons."; "Each surface polygon is treated as a group of triangles that are constructed as follows..."; "Contributions [of the triangles] to mass, CG, products of inertia, and moments of inertia are accumulated in sequence to cascade the calculations and thereby reduce arithmetic operations*."). Messer et al does not use the explicit language "determining another centroid" and "computing another area." An artisan would recognize that these features are inherent in the description of how the polygon is treated in the final paragraph of section "METHOD" on page 123: "as a group of triangles." The Messer et al system would be inoperative if the computations were not repeated for each triangle.

13. Claim 6 is met by the combination of Messer et al and Cortés et al, wherein Messer et al teaches, "solving a volume integral for a simplicial polyhedron having facets comprising triangles using the area integral" (*p. 121, section "METHOD: The several equations, eqs. (1) through (10) to be integrated over the surface of the polyhedra were derived from volume integral forms through the application of the Gauss divergence theorem."; p. 123: "Computation of the surface integrals is done through a quadrature rule applied to the*

triangular elements of the surface polygons."), and Cortés et al teaches "solving the area integral without integration" as shown in the rejection of claim 1.

14. With regard to claim 7, the combination of Messer et al and Cortés et al shows the limitations of claim 1. Messer et al gives the computer executable instructions in Algorithm 550. Messer et al tests the algorithm on an IBM 370. Although Messer et al teaches using the computer for testing the algorithm, Messer et al is silent on a computer readable medium. However, this feature is deemed to be inherent to the method disclosed by Messer as the section "TESTS" clearly shows the method was executed on a computer and the algorithm 550 is disclosed. The Messer et al system would be inoperative if the algorithm was not provided on a medium readable by the IBM 370.

15. **Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Messer et al in view of Cortés et al and in further view of U.S. Patent No. 5,471,571 to Smith et al (herein referred to as "Smith et al.")**

16. With regard to claim 4, the combination of Messer et al and Cortés et al shows the limitations recited in claim 1, on which claim 4 depends. With regard to lines 1 through 4 of claim 4, Messer et al teaches "the properties correspond to the mass properties of a body and the area integral for the triangle corresponds to the moment of inertia of the triangle," (*p. 123: "Contributions [of the triangles] to mass, CG, products of inertia, and moments of inertia are accumulated in sequence to cascade the calculations and thereby reduce arithmetic operations."*). With regard to lines 5-7 of claim 4, Messer et al does not expressly teach "determining the moment of inertia for a graphics processing component."

17. Smith et al discloses "determining the moment of inertia for a graphics processing component" (*lines 40-41 of column 3: "In this embodiment, the graphical object 11 is a five-sided two-dimensional polygon."; lines 56-57 of column 3: "Equations 1 and 2 represent the motion of a solid object in a viscous medium under the influence of a force F applied at point u."; line 66-67 of column 3: "Variable m represents the mass of the solid object 11 and variable I represents the moment of inertia of the object."; lines 12-13 of column 3: "The variables b, L, I, and m can be calculated or set to a constant."*).

18. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide the computed moment of inertia as taught by the Messer et al and Cortés et al, to a graphics processing component as taught by Smith et al. The motivation for doing so would have been to provide a physically accurate model of a graphical object, as suggested by Smith et al in lines 30-33 of column 2. Therefore, it would have been obvious to combine Smith et al with Messer and Cortés et al to obtain the invention specified in claim 4.

19. **Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cortés et al in view of "Centroid, Area, Moments of Inertia, Polar moments of Inertia, & Radius of Gyration of Triangular Areas," Way Back Machine archived page from Oct. 27, 2000 [online], [Retrieved 10/18/2005], Retrieved from the internet: <URL: http://web.archive.org/web/20001027235324/http://www.efunda.com/math/areas/triangle.cfm> (herein referred to as "eFunda resource.")**

20. With regard to claim 8, Cortés et al teaches a method comprising: "determining a moment of inertia of a triangular body of the triangular body from a mass value and vertices of the triangular body" (*Section IV A: "*$U(p_1, \ldots, p_n)$*...where* J_{V_i, p_i} *is the polar moment of inertia of*

the Voronoi region V_i about the point pi, and M_{V_i} is the mass of the Voronoi region V_i."). As shown by Cortés et al in equation 6, the moment of inertia is computed by multiplying the distance function by a given mass for a polygon, where the density function is unity and consequently M_{V_i} becomes the triangle area. With regard to lines 5 and 6 of claim 8, Cortés et al teaches "providing the moment of inertia to a computer component for subsequent processing," where the moment of inertia is used in the computations for a coverage control law for mobile sensing networks in shown in equations 7 and 8 in section IV A.

21. With regard to claims 8-10, Cortés et al does not expressly teach an equation that provides the polar moment of inertia about an axis perpendicular to a plane in the specific case where the polygon is a triangle. The eFunda resource teaches an explicit formula for computing the moment of inertia without integration using the formula for the "polar moment of inertia about the z_c axis" and the area of a triangle. Writing the equation "polar moment of inertia about the z_c axis" multiplied by the area ((bh)/2) taught by the eFunda resource in terms of the coordinates of triangle vertices, $\boldsymbol{P_1} = (0,0)$, $\boldsymbol{P_2} = (a, h)$, and $\boldsymbol{P_3} = (b,0)$ yields the equation recited in claim 9. Writing the equation "polar moment of inertia about the z_c axis" multiplied by the area ((bh)/2) taught by the eFunda resource in terms of the coordinates of triangle vertices, $\boldsymbol{P_1} = (0,0)$, $\boldsymbol{P_2} = (a, h)$, and $\boldsymbol{P_3} = (b,0)$, and centroid $\boldsymbol{C} = (\boldsymbol{C_x}, \boldsymbol{C_y})$, where the values for $\boldsymbol{C_x} = ((a+b)/3)$ and $\boldsymbol{C_y} = (h/3)$ are taught by the eFunda resource, yields the equation recited in claim 10. The "mass value" taught by Cortés et al is equal to the area equation taught by the eFunda resource when written in terms of the base and the height.

22. Cortés et al and the eFunda resource are analogous art because they are from the same problem solving area: computing mass properties of triangles. At the time of the invention, it

would have been obvious to a person of ordinary skill in the art to use the explicit equation for polar moment of inertia about the z_c axis and the triangle area as given by the eFunda resource in the method taught by Cortés et al, by converting the equations written in terms of the triangle base and height into triangle vertices. The motivation for doing so would have been to further simplify the computations in the special case when the polygon is a triangle. Therefore, it would have been obvious to modify Cortés et al with the eFunda resource to obtain the invention specified in claim 8-10.

23. Claim 11 is met by the combination of Cortés et al and the eFunda resource, wherein Cortés et al teaches "determining the centroid form the vertices" (*Section IV. B the equations for the centroid* ($C_{Vi,x}$, $C_{Vi,y}$) *are given in terms of the vertices.*)

24. With regard to claim 12, the combination of Cortés et al and the eFunda resource meets the limitations of claim 8, but fails to expressly teach a "computer-readable medium having computer executable instructions." Official Notice is taken that both the concept and the advantages of having a computer-readable medium store computer executable instructions is well known and expected in the art. It would have been obvious to have included the computer readable medium containing the instructions in a system for computing the moment of inertia of the triangle, as computer readable mediums are known to provide an intermediate storage of instructions for contemporary computing systems.

25. **Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Messer et al in view of Applicant's Admitted Prior Art: Sheue-ling Lien and James T Kajiya, "A Symbolic Method for Calculating the Integral Properties of Arbitrary Nonconvex**

Polyhedra," IEEE Computer Graphics And Applications, Oct. 1984, p. 35-41 (herein referred to as "Lien et al.")

26. With regard to claim 13, Messer et al teaches

a. "selecting a facet of polyhedron as a selected facet, the selected facet comprising a triangle" (*non-executed descriptive programmer comment on lines 403 and 404 of Algorithm 550 code: "Surface processing involves starting with the initial face, and [proceeding] through the secondary face , if any"; non-executed descriptive programmer comment on lines 410 and 411 of Algorithm 550 code: "In the face processing, faces are divided into all unique triangles… "*);

b. "computing a centroid of the facet" (*see rejection of claim 1, which references lines 589-591 of Algorithm 550 code*);

c. "computing an area of the facet" (*non-executed descriptive programmer comment on lines 406 - 409 of Algorithm 550 code: "the area vector, whose magnitude is the area of the surface, is then computed from the components and is accumulated in the total surface area of the solid"*);

d. "computing facet integrals about the centroid" (*page 123, equation 11*);

e. "computing facet integrals about the origin from the integrals about the centroid" (*the final paragraph of the section "METHOD" on page 123: "Properties are finally shifted to parallel axes through the computed centroid. In this form, standard methods can be employed to yield values about arbitrary axes or to solve for principal values. "*);

f. "adding the computed volume integrals to resulting integrals" (*the final paragraph of the section "METHOD" on page 123: "Contributions to mass, CG,*

products of inertia, and moments of inertia are accumulated in sequence to cascade the calculations and thereby reduce arithmetic operations.");

g. "selecting a facet that was not previously selected as the selected facet and returning to step (b) until each facet has been selected" (*non-executed descriptive programmer comment on lines 403 and 404 of Algorithm 550 code: "Surface processing involves starting with the initial face, and [proceeding] through the secondary face , if any"; non-executed descriptive programmer comment on lines 415 and 416 of Algorithm 550 code: "Thus each triangle of each face of each surface has a contribution in the final results."*).

27. Messer et al teaches using a computer component. Messer et al does not expressly teach "providing the resulting integrals to a computer component for subsequent processing." However, this feature is deemed to be inherent to the method as the second paragraph of section "TESTS" on page 125 (*"Several specific test problems are presented to illustrate the accuracies obtainable in single and double precision with the IBM 370 equipment."*) shows the results are used in tests that were run on a computer component in which the results are shown in Table I. The system would be inoperative if subsequent processing by a computer component was not performed to output the data.

28. Messer et al discloses computing volume integrals (*the first paragraph in the section "METHOD" page 121: "The several equations, eqs. (1) through (10), to be integrated over the surface of the polyhedra were derived from the volume integral forms through application of the Gauss divergence theorem."*). Messer et al does not expressly disclose "computing volume integrals over a facet cone." Lein et al teaches "computing volume integrals over a facet cone"

(*section "Outline of the method, p. 38-39: "Therefore, the integral can be represented as a surface integral over the boundary of the polyhedron. For example, in Figure 2, where the integral is taken over a small volume delta-v, a cone that is expanded by a small face delta-s of the polyhedron with respect to the origin, the result is...* ").

29. The method of computing the integrals taught by Messer et al is an exact method for polynomials limited to polynomials up to degree three (*p. 123*). Lien et al teaches an exact method (*10th paragraph of introduction on p. 36: "This method adopts a systematic and automatic decomposition. It is analytically exact but the practical accuracy of the result is within the accuracy of the floating-point arithmetic.* "). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the method for calculating the integral properties of polyhedra taught by Lien et al in the method taught by Messer et al. The motivation for doing so would have been to improve the accuracy of the calculations by using an analytically exact method instead of an approximation as suggested by Lien et al in the tenth paragraph of the introduction on page 36. Therefore, it would have been obvious to combine Lien et al with Messer et al to obtain the invention specified in claim 13.

30. With regard to claim 14, the combination of Messer et al and Lien et al shows the limitations of claim 13. Messer et al gives the computer executable instructions in Algorithm 550. Messer et al tests the algorithm on an IBM 370. Although Messer et al teaches using the computer for testing the algorithm, Messer et al is silent on a computer readable medium. However, this feature is deemed to be inherent to the method disclosed by Messer as the section "TESTS" clearly shows the method was executed on a computer and the algorithm 550 is

disclosed. The Messer et al system would be inoperative if the algorithm was not provided on a medium readable by the IBM 370.

31. Claim 15 recites the same limitations as claim 13 except for the operations recited in (b) of claim 15, which deal with facets that are not triangles. The rejection of (a), (f), (g), (h) and (i) of clam 13 applies to (a), (c), (d), (e), and (f) of claim 15 respectively. With respect to (b) of claim 15, referring to the code for Algorithm 550, Messer et al stores the face lists of the polyhedron. Messer et al teaches that a face polygon is broken up into smaller triangles (*non-executed descriptive programmer comment on lines 410 and 411 of Algorithm 550 code: "In the face processing, faces are divided into all unique triangles as vertices the first one of the list and any other two adjacent vertices of the face polygon."*); therefore, the method "detects a triangle" if three vertices are present in the face polygon, and a polygon is detected if the more than three vertices are present in the face polygon. As shown in the rejection of claim 13, (b), (c) and (d) of claim 13 are taught by Messer et al, and (b), (c) and (d) of claim 13 correspond to (i), (ii), (iii) of claim 15 respectively. Furthermore, the operations recited (ii), and (iii) of claim 15 are identical to the operations recited in (iv) and (v) of claim 15. As shown in the rejection of claim 13, Messer et al teaches (b), (c) and (d) of claim 13 whenever a face, triangular or otherwise, is encountered. Thus, Messer et al teaches (b) of claim 15 where (i), (ii) and (iii) of claim 15 are performed when a triangle is detected, and (iv) and (v) of claim 15 when a polygon is detected.

32. With regard to claim 16, the combination of Messer et al and Lien et al shows the limitations of claim 15. Claim 16 is claim 15 recited as a "computer-readable medium having computer executable instructions," and this feature was shown to be inherent in Messer et al in the rejection of claim 14.

Conclusion

33. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ronald N. Goldman, "Area of Planar Polygons and Volume of Polyhedra," in Graphics Gems II, 1991, p. 170-171 shows computing the volume and area of polyhedra using the vertices. C. Cattani, A. Paoluzzi, "Boundary integration over linear polyhedra," March 1990, Computer-Aided Design, v. 22 n. 2, p.130-135 teaches a computer implemented method for computing mass-properties of polyhedra.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Repko whose telephone number is 571-272-8624. The examiner can normally be reached on Monday through Friday 8:30 am -5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMR

UChauhan
ULKA J. CHAUHAN
PRIMARY EXAMINER